...SEE the Future

Princeton Instruments

PIXIS-XO: 400B

1340 x 400 imaging array | 20 x 20 µm pixels

The Princeton Instruments PIXIS-XO: 400B is a fully integrated, innovative imaging system that utilizes a CCD without AR coating for very low energy X-ray detection. With 1340 x 400, 20 µm pixels, 100% fill factor, deep thermoelectric cooling with air or water and low noise electronics this system is ideal for worry-free operation in research and OEM environments. The Conflat flange with high-vacuum-seal design, software-selectable gains and readout speeds make the camera well suited for ultra-high vacuum applications.

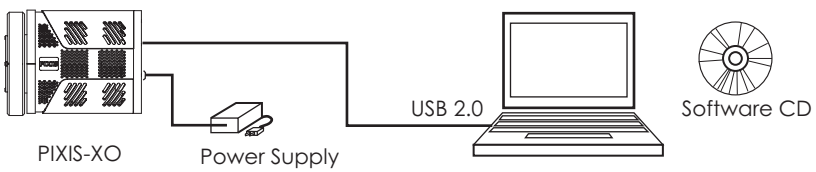
Applications: X-ray spectroscopy, EUV lithography, X-ray plasma diagnostics

Features	Benefits	
Back-illuminated CCD, no AR coating, direct detection technology	Provides very low X-ray flux imaging, high sensitivity and high spatial resolution	
2 Mhz / 16-bit readout **100 kHz / 16-bit readout**	High speed readout for rapid image acquisition Slow speed readout for high sensitivity with wide dynamic range, high signal-to-noise ratio (SNR) and excellent energy resolution	
Software selectable gains for each digitization speed	Allows optimization of system performance for lowest noise to highest SNR	
1340 x 400 image area, 20 x 20 µm pixels	Spectroscopy format designed for high-frame-rate imaging	
Ultra low noise electronics	Best possible system performance	
Flexible user selectable binning and readout	Total flexibility to optimize experiments and SNR	
Deep thermoelectric cooling	**Air**	**Water**
	Maintenance-free operation without the need for a liquid circulator or an additional power supply	Vibration free operation
Conflat vacuum interface	Industry-standard, high-vacuum compatibility	
TTL input and output	External Trigger input with programmable polarity TTL output with exposure or readout monitor	
"USB 2.0 interface" configuration	Seamless, plug-and-play connection to PC notebooks and desktops Easy OEM integration	
WinView and PVCAM®	Offers powerful, easy-to-use set of Windows® GUI controls Automates data acquisition, analysis, and display	
Linux® drivers and SITK™ plug-in for National Instruments' LabVIEW™	Extends system utility	

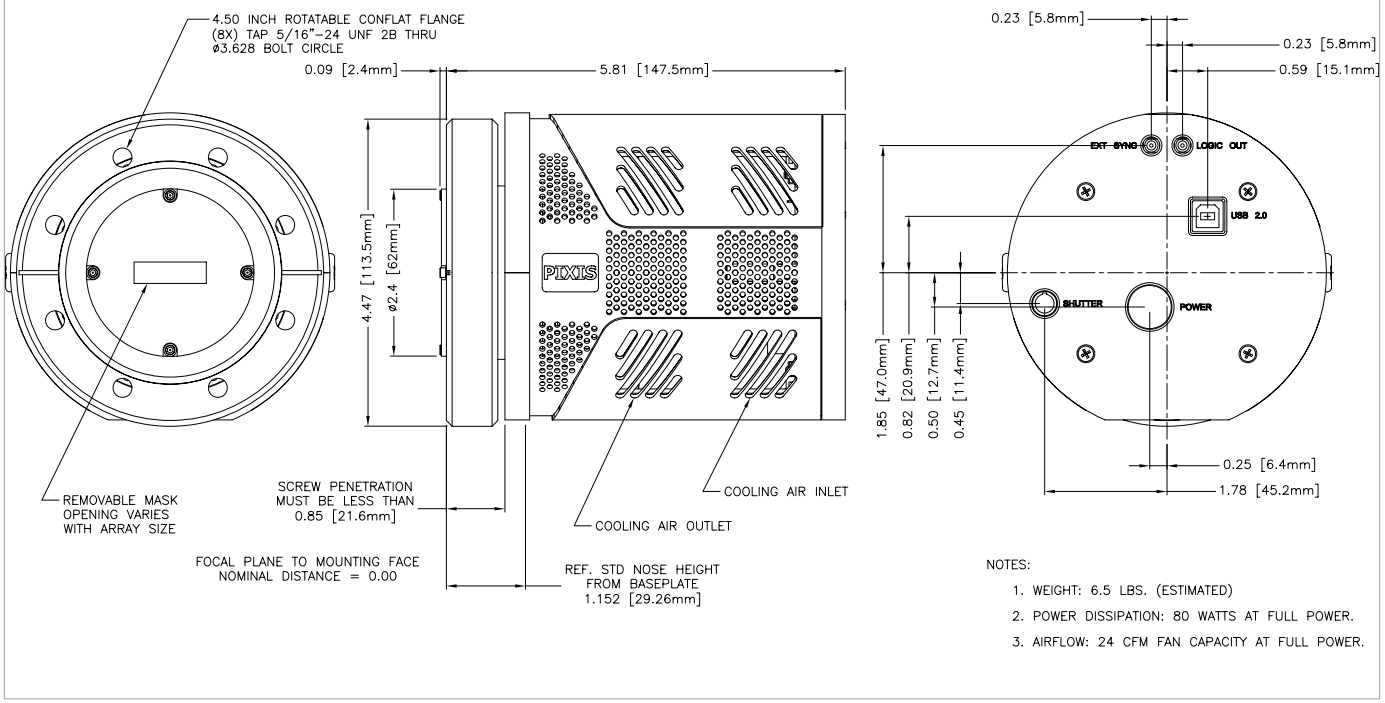
PIXIS-XO: 400B Specifications

CCD image sensor	Princeton Instruments exclusive; scientific grade 1; MPP; back-illuminated device; without AR coating					
CCD format	1340 x 400 imaging pixels 20 x 20 µm pixels 100% fill factor 26.8 x 8.0 mm imaging area (optically centered)					
	Minimum		Typical		Maximum	
	High Sensitivity	**High Capacity**	**High Sensitivity**	**High Capacity**	**High Sensitivity**	**High Capacity**
System read noise **@ 100 kHz digitization** **@ 2 MHz digitization**			3.5 e- rms 13 e- rms	10 e- 25 e-	5 e- rms 16 e- rms	12 e- 30 e-
Spectrometric well capacity	250 ke-	800 ke-	300 ke-	300 Me-		
Dark current @ -75°C operation			0.005 e-/p/s		0.01 e-/p/s	
Cooling Method	Thermoelectric Air (standard); Water cooled (optional)					
Deepest cooling temperature	-70°C		-75°C			
Thermostating precision	±0.05°C across entire temperature range					
Software-selectable gains **(e-/count)**	1, 2, 4 (high sensitivity mode) 4, 8, 16 (high capacity mode)					
Operating system support	Windows 2000/XP; Linux					
Data interface	USB2.0 (5m interface cable provided) Optional Fiberoptic interface is available for remote operation					
I/O signals	Two MCX connectors for programmable frame readout, shutter trigger in					
Certification	CE					
Dynamic range	16 bits					
Nonlinearity	< 1% @100 kHz, < 2% @ 2 MHz					
Vertical shift rate	30 µsec per row					
Spectral rates* **@ 100 kHz digitization** **@ 2 MHz digitization**	 41 spectra/sec (FVB) 74 spectra/sec (FVB); 1000 spectra/sec (0.5 mm high)					
Operating environment	+5 to +30°C non-condensing					
Bakeout temp.	70°C (max)					
Vacuum compatibility	10^{-8} Torr.					

Notes: All specifications subject to change.
* Spectral rates measured with all rows vertically binned.
# The minimum temperature attainable is dependent on the vacuum condition (can be lowered with lower vacuum).



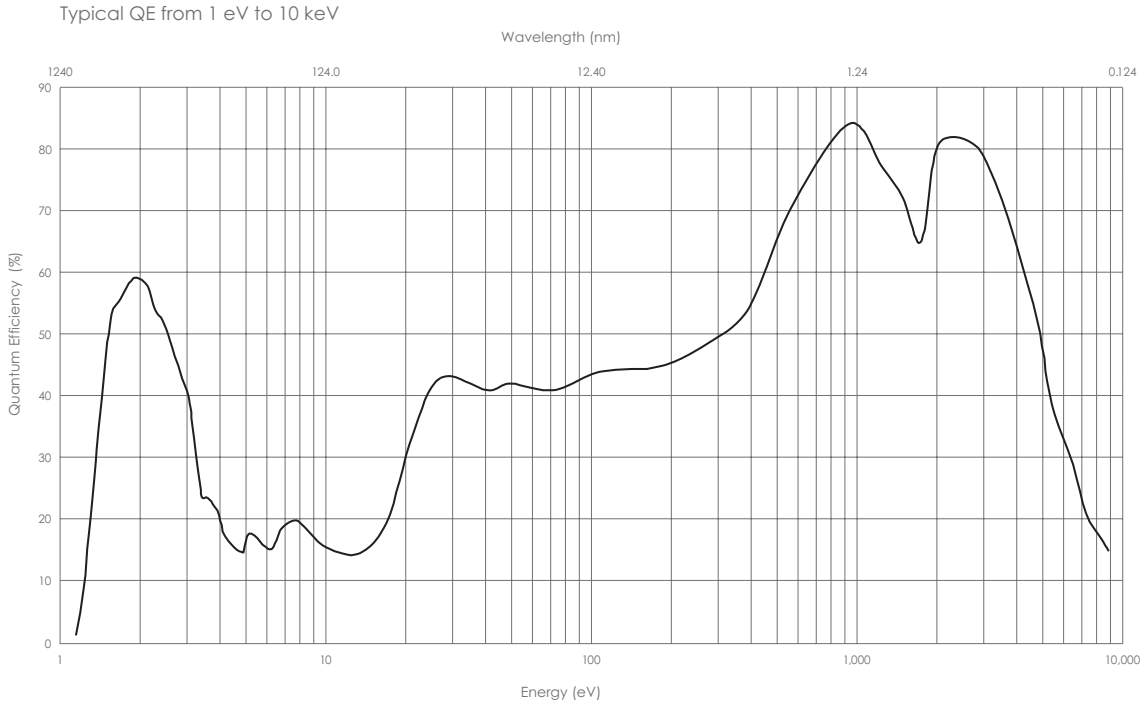
PIXIS-XO Drawing



NOTES:

1. WEIGHT: 6.5 LBS. (ESTIMATED)
2. POWER DISSIPATION: 80 WATTS AT FULL POWER.
3. AIRFLOW: 24 CFM FAN CAPACITY AT FULL POWER.

Quantum Efficiency Curve



Princeton Instruments

www.piacton.com
email: moreinfo@piacton.com
USA +1.877.4 PIACTON | Benelux +31 (347) 324989
France +33 (1) 60.86.03.65 | Germany +49 (0) 89.660.779.3
UK +44 (0) 28.38310171 | Asia/Pacific +65.6293.3130
China +86 135 0122 8135 | Japan +81.3.5639.2741